Space Weather Forecast

Issued on Friday 14 March 2025 at 01:29 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Isolated Moderate class flares likely. Minor geomagnetic storms expected today.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with only common class flares observed. This is despite the ten numbered regions currently on the Earth-facing disc, including two with mixed magnetic polarity spots, and some increased potential for flaring due to this. The most notable of these is in the north-centre disc, with the second in the southeast. The other region of note the region still moving onto the Earth-facing disc from over the southeast limb.

No Earth-directed CMEs (coronal mass ejections) have been observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds continued to indicate a connection to the fast solar winds from a coronal hole. Wind speeds were predominantly at Elevated levels, generally ranging between 490-550 km/s. Interplanetary Magnetic Field strength remained Weak. The north-south component fluctuated Weakly. Geomagnetic activity was Active to Minor Storm.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is likely, with isolated Moderate class flares and a slight chance of Strong flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Ongoing fast solar wind, currently near 550km/s, is expected to gradually ease a little today (14 Mar) but especially through tomorrow (15 Mar), before a further enhancement is possible from a fast wind from a coronal hole feature either late day 3 (16 Mar) or more likely through day 4 (17 Mar). Geomagnetic activity is expected to start at Active to Minor Storm levels then decrease Unsettled to Active today, then becoming mainly Quiet to Unsettled with isolated Active intervals for days 2 and 3. The arrival of the solar wind enhancement from the coronal hole brings a chance of activity increasing to Active to Minor Storm again.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to be at background with no solar radiation storms occurring

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	80	30	50	50
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	50	50	50	50
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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